## AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1.    (Original)  An imaging system, comprising:

an array of lenses;

a plurality of sensor pixels for each lens, the sensor pixels being on an image plane of the imaging system; and

a corresponding plurality of focal plane coding elements, a focal plane coding element provided for each sensor pixel having multiple sub-pixel resolution elements, the focal plane coding element being between the lens and sensor pixel, wherein sub-pixel resolution elements over the plurality of focal plane coding elements represent a selected transform matrix, the output of the plurality of sensor pixels being an image multiplied by the selected transform matrix, the selected transform matrix having a non-zero determinant.

2.    (Original)  The imaging system as recited in claim 1, wherein the focal plane coding element provides sub-pixel shifted multiple images on each sensor pixel.

3.    (Original)  The imaging system as recited in claim 1, wherein the focal plane coding element is an apertured mask.

4.    (Original)  The imaging system as recited in claim 1, further comprising color filters.

5.    (Original)  The imaging system as recited in claim 1, wherein the color filters are integral with the focal plane coding element.

6.    (Original)  The imaging system as recited in claim 1, further comprising a birefringent structure adjacent the focal plane coding element.

7.    (Original)  The imaging system as recited in claim 1, further comprising a corresponding plurality of focusing lenses, a focusing lens between the focal plane encoding element and a corresponding sensor pixel.

8.      (Original)  The imaging system as recited in claim 1, wherein the selected transform matrix has fewer rows than columns.

9.      (Original)  The imaging system as recited in claim 1, wherein at least one sensor pixel receives light from more than one lens of the array of lenses.

10.     (Original)  The imaging system as recited in claim 1, further comprising a processor receiving the outputs of the sensor pixels and multiplying the outputs by an inverse of the selected transform matrix.

11.     (Original)  The imaging system as recited in claim 10, wherein the processor reconstructs an image from the outputs, a number of image pixels in the image being greater than the plurality of sensor pixels.

12.     (Original)  An imaging system, comprising:

an array of lenses;

a plurality of sensor pixels for each lens;

a corresponding plurality of filters, a filter provided for each sensor pixel having multiple sub-pixel resolution elements and providing a sub-pixel shifted multiple image on each sensor pixel; and

a processor receiving outputs from each sensor pixel and reconstructing an image, a number of image pixels in the image being greater than the plurality of sensor pixels.

13.     (Currently Amended)  The imaging system as recited in claim 12, further comprising a birefringent structure adjacent the plurality of filters.

14.     (Original)  The imaging system as recited in claim 12, further comprising a corresponding plurality of focusing lenses, a focusing lens between the filter and a corresponding sensor pixel.

15.     (Original)  The imaging system as recited in claim 12, wherein at least one sensor pixel receives light from more than one lens of the array of lenses.

16.    (Original)  The imaging system as recited in claim 12, wherein the filter is an apertured mask.

17.    (New)  The imaging system as recited in claim 1, wherein the focal plane coding element is closer to the plurality of sensor pixels than to the array of lenses.

18.    (New)  The imaging system as recited in claim 12, wherein the filter is between the plurality of sensor pixels than to the array of lenses.

19.    (New)  The imaging system as recited in claim 18, wherein the filter is closer to the plurality of sensor pixels than to the array of lenses.

20.    (New)  The imaging system as recited in claim 12, wherein the selected transform matrix has fewer rows than columns.